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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/691,583	10/18/2000	Neil Maxwell McLachlan	00-704-US	5062

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EXAMINER

REIS, TRAVIS M

ART UNIT PAPER NUMBER

2859

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/691,583

Applicant(s)

MCLACHLAN ET AL.

Examiner

Travis M Reis

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 22 and 23 is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-21, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Features critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See In re Mayhew, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The independent claims lack essential features since, according to the pages 7-8 of the specification and the remarks stated in pages 7-8 of the amendment, filed 1/28/03, at least one of the features mentioned is required to provide the harmonic frequencies. Thus, applicant should amend the independent claims to state the at least one essential/critical structural feature stated in the specification and amendment which provide the harmonic frequencies.

In response to Applicant's arguments regarding the critical or essential features: these have been fully considered but they are not persuasive because the term "bell" does not inherently disclose any structural features which will provide harmonic frequencies.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2859

4. Claims 1-13 & 15-21, 24, & 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art stated in pages 1 to 5 of the specification [hereinafter Prior Art] in view of the ReShape computer program user's manual, [hereafter Reshape].

With reference to claims 1-3, 13, & 24: the Prior Art (specifically page 3, lines 26-30) teach that a bell with the greatest clarity of sound is an harmonic bell, i.e. a bell having at least the first several modal frequencies in the ratios 1, 2, 3, 4, etc.

The Prior Art also teaches that a bell can be designed via the use of a finite element method in conjunction with an optimization algorithm (pages 4-5).

The Prior Art does not provide a particular structure of the harmonic bell.

Reshape teaches a commercially well-known finite element program used to optimize the design of any desired structure. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention was made to use the finite element program Reshape in conjunction with an optimization algorithm as taught by the Prior Art in order to design a harmonic bell since the Prior Art has already suggested that harmonic bells have the greatest clarity of sound.

With reference to claims 15-17, 19, & 25, the Prior Art (specifically page 5 lines 12-20) teaches that a single feature, i.e. initial bell shape or the wall thickness of a bell's shape can be used as an initial shape in an optimization procedure in an attempt to find the optimal shape of a bell.

With reference to claim 20, the Prior Art (specifically pages 4, lines 23-32 through page 5 lines 1-20), teaches the optimization procedure comprises the steps of setting the initial bell shape, selecting one of the first three frequencies to be tuned as a current objective, selecting a value to modify the bell shape off of successively until the final objective of desired frequencies is met.

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With reference to claims 4-12, & 18, the Prior Art teaches the bell has a top portion, a side portion and a mouth, the side portion extending from the top portion to the mouth, the outer surface of the side portion being generally in the form of a truncated circular cone and generally convex, the inner surface of the side portion being generally in the form of a truncated circular cone, and generally concave, the whole bellshape being generally tapered.

With reference to claim 21, this is a "product by process" claim since the claim language is directed to the steps required to form the bell. Therefore, these steps have been given no patentable weight since it has been held that 1) the determination of patentability in "product by process" claims is based on the product itself, even though such claims are limited and defined by the process, and 2) the product in a "product by process" claim is unpatentable if it is the same as, or obvious from a product of the prior art, even if the prior art product was made by a different process. In re Thorpe et al., 227 USPQ 964 (Fed. Cir. 1985).

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-13, 15-21, 24, & 25 have been considered but are moot in view of the new ground(s) of rejection.

### ***Allowable Subject Matter***

6. Claims 22 & 23 allowed.

7. The following is an examiner's statement of reasons for allowance:

With reference to claim 22, the prior art of record does not disclose or clearly suggest an axisymmetric bell having a top portion, a side portion and a mouth, the side portion extending from the top portion to the moth, meridonal cross-section of the side portion being substantially geometrically similar to a cross section having an outer line formed be fitting an arc of a circle to three points having rectangular coordinates x, y, of the nodes set out in table 3, in combination with the remaining limitations in the claims.

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With reference to claim 23, the prior art of record does not disclose or clearly suggest an axisymmetric bell having a top portion, a side portion and a mouth, the side portion extending from the top portion to the mouth, meridional cross-section of the side portion being substantially geometrically similar to a cross section having an outer line formed by fitting an arc of a circle to two points having rectangular coordinates  $x, y$ , of the nodes set out in table 6, in combination with the remaining limitations in the claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

8. Inquiries concerning this or earlier communications from the examiner should be directed to Travis M Reis (703) 305-4771, reachable 8--5 M--F. If unavailable, contact the examiner's supervisor, Diego Gutierrez (703) 308-3875. The fax for this organization is (703) 872-9306. Inquiries of a general nature or relating to the status of this application or proceeding should be directed to the receptionist (703) 308-0956.

Travis M Reis  
Examiner  
Art Unit 2859

  
Brad Bennett  
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tmr  
January 6, 2004